

Use Attainability Analysis
for
WBID 0447 East Fork Big Creek

Submitted by
SES Inc.
to
Missouri Department of Natural Resources
Water Protection Program

Date received: November 14, 2007

Field Data Sheets for Recreation Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	E. Fk. Big Cr.
Missouri Water Body Identification (WBID) Number:	447
8 digit HUC code: 10280101	County: Harrison
Upstream Legal Description (from Table H):	T67N R27W Sec 26
Downstream Legal Description (from Table H):	T64N R27W Sec 5
Number of sites evaluated:	11
List all site numbers, listed consequently upstream to downstream: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

Facility Name(s) and Permit Number(s): Blythedale WWTF MO0123081
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III. UAA Surveyor (please print legibly)

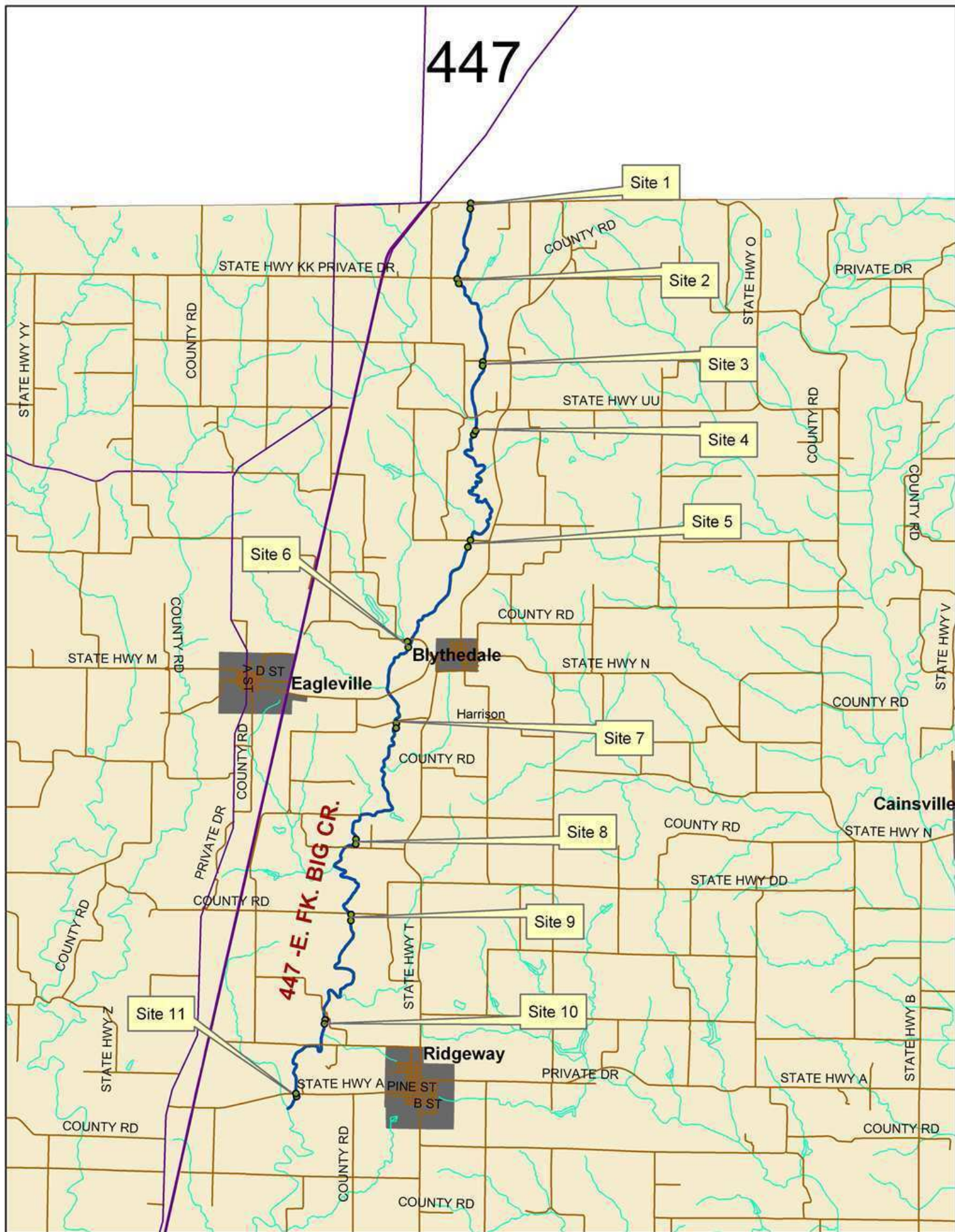
Name of Surveyor: Gilisa Gould	Telephone Number: 913.307.0054
Organization/Employer: SES, Inc.	

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed: gilisa gould

Date: 10.04.07

447



WBID # 447
 Site # 1

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.19.07 15:15	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	100 Rd.
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421687	4492012		6.1	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421675	4491880		6.7	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
53	downstream	54	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: crops land, Interstate 35				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel 20	% Sand 30	% Silt 20	% Mud/Clay 30	% Bedrock
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Aquatic Vegetation:

banks vegetated with common grasses and forbes, esp. trees
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Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.19.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>1</u> Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0421687</u> UTM Y: <u>4492012</u> +/- <u>6.1</u> (meters) 11 UTM X: <u>0421675</u> UTM Y: <u>4491880</u> +/- <u>6.7</u> (meters) Average Stream Width: <u>4.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson</u> and <u>Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.19.07</u> Time: <u>15:15</u> Dissolved Oxygen: <u>7.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.3</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.6	0.05	0.7	0.05	0.2	0.05	0.3	0.05	0.5	0.05	0.6	0.01	0.6	0.05	0.6	0.05	0.27	0.01	0.3	0.05	0.5	0.05
2	1.1	0.15	1.5	0.15	0.4	0.10	0.5	0.25	0.9	0.05	1.3	0.10	1.1	0.20	1.1	0.20	0.54	0.10	0.5	0.10	0.9	0.15
3	1.7	0.25	2.2	0.10	0.5	0.10	0.8	0.30	1.4	0.15	1.9	0.10	1.7	0.20	1.7	0.25	0.81	0.15	0.8	0.15	1.4	0.20
4	2.2	0.20	2.9	0.05	0.7	0.15	1.1	0.30	1.8	0.20	2.6	0.10	2.2	0.20	2.2	0.25	1.08	0.20	1.1	0.15	1.8	0.15
5	2.8	0.20	3.7	0.01	0.9	0.10	1.4	0.25	2.3	0.15	3.2	0.10	2.8	0.20	2.8	0.25	1.35	0.15	1.4	0.20	2.3	0.20
6	3.3	0.20	4.4	0.00	1.1	0.05	1.6	0.15	2.8	0.10	3.8	0.15	3.3	0.10	3.3	0.10	1.62	0.20	1.6	0.20	2.8	0.15
7	3.9	0.20	5.1	0.05	1.3	0.05	1.9	0.10	3.2	0.05	4.5	0.10	3.9	0.15	3.9	0.00	1.89	0.15	1.9	0.15	3.2	0.15
8	4.4	0.15	5.8	0.10	1.4	0.05	2.2	0.05	3.7	0.05	5.1	0.10	4.4	0.15	4.4	0.05	2.16	0.10	2.2	0.10	3.7	0.15
9	5.0	0.05	6.6	0.05	1.6	0.01	2.4	0.01	4.1	0.05	5.8	0.05	5.0	0.10	5.0	0.05	2.43	0.05	2.4	0.05	4.1	0.05
Right Bank	5.5	0.00	7.3	0.00	1.8	0.00	2.7	0.00	4.6	0.00	6.4	0.00	5.5	0.00	5.5	0.00	2.7	0.00	2.7	0.00	4.6	0.00
Feature Type	run		run		riffle		run		riffle		riffle		pool		pool		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 2

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.19.07 15:55	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	110 Road
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421356	4490150		5.2	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421392	4490044		5.8	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
55	upstream	56	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: none				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel 20	% Sand 70	% Silt 10	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

banks well vegetated with variety of forbes and trees: grasses, flowers, willow, maple

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: silty
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

narrow and steep channel, water flowing

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.19.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>2</u> Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0421356</u> UTM Y: <u>4490150</u> +/- <u>5.2</u> (meters) 11 UTM X: <u>0421392</u> UTM Y: <u>4490044</u> +/- <u>5.8</u> (meters) Average Stream Width: <u>2.8</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.19.07</u> Time: <u>15:55</u> Dissolved Oxygen: <u>9</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.7</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.3	0.05	0.3	0.05	0.4	0.10	0.2	0.01	0.3	0.05	0.2	0.05	0.4	0.05	0.4	0.05	0.27	0.10	0.3	0.05	0.3	0.10
2	0.5	0.01	0.5	0.15	0.7	0.30	0.4	0.10	0.5	0.10	0.4	0.20	0.7	0.20	0.7	0.15	0.54	0.20	0.5	0.20	0.5	0.10
3	0.8	0.01	0.8	0.20	1.1	0.30	0.5	0.15	0.8	0.20	0.5	0.20	1.1	0.20	1.1	0.20	0.81	0.25	0.8	0.20	0.8	0.20
4	1.1	0.10	1.1	0.20	1.5	0.25	0.7	0.15	1.1	0.20	0.7	0.20	1.5	0.25	1.5	0.20	1.08	0.25	1.1	0.20	1.1	0.30
5	1.4	0.20	1.4	0.25	1.9	0.30	0.9	0.10	1.4	0.25	0.9	0.20	1.9	0.25	1.9	0.30	1.35	0.30	1.4	0.30	1.4	0.40
6	1.6	0.10	1.6	0.10	2.2	0.30	1.1	0.05	1.6	0.20	1.1	0.20	2.2	0.20	2.2	0.25	1.62	0.30	1.6	0.30	1.6	0.35
7	1.9	0.10	1.9	0.10	2.6	0.30	1.3	0.10	1.9	0.15	1.3	0.10	2.6	0.15	2.6	0.20	1.89	0.30	1.9	0.25	1.9	0.25
8	2.2	0.05	2.2	0.10	3.0	0.20	1.4	0.05	2.2	0.20	1.4	0.05	3.0	0.15	3.0	0.20	2.16	0.20	2.2	0.15	2.2	0.30
9	2.4	0.01	2.4	0.05	3.3	0.05	1.6	0.05	2.4	0.05	1.6	0.05	3.3	0.05	3.3	0.10	2.43	0.10	2.4	0.10	2.4	0.05
Right Bank	2.7	0.00	2.7	0.00	3.7	0.00	1.8	0.00	2.7	0.00	1.8	0.00	3.7	0.00	3.7	0.10	2.7	0.00	2.7	0.00	2.7	0.00
Feature Type	riffle		run		pool		riffle		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

3.33 MAXIMUM

1.35 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 3

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.19.07 16:50	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	Road 122
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:		Meters
	0421986	448111			12.2
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:		14.3
	0421975	4488024			

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
57	upstream	58	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:
 pasture, leased hunting ground

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other:
 none

Substrate:

% Cobble	% Gravel 20	% Sand 70	% Silt	% Mud/Clay 10	% Bedrock
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Aquatic Vegetation:

vegetation on all banks and none in water

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.19.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>3</u> Estimated Channel Incision: <u>3.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0421986</u> UTM Y: <u>4488111</u> +/- <u>12.2</u> (meters) 11 UTM X: <u>0421975</u> UTM Y: <u>4488024</u> +/- <u>14.3</u> (meters) Average Stream Width: <u>3.4</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson</u> and <u>Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.19.07</u> Time: <u>16:50</u> Dissolved Oxygen: <u>8.8</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.3</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Station																						
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.05	0.4	0.06	0.5	0.05	0.6	0.05	0.6	0.05	0.3	0.05	0.2	0.01	0.2	0.05	0.18	0.05	0.2	0.05	0.3	0.05
2	0.9	0.10	0.7	0.15	0.9	0.20	1.3	0.05	1.1	0.10	0.5	0.05	0.4	0.05	0.4	0.10	0.36	0.10	0.4	0.10	0.5	0.15
3	1.4	0.20	1.1	0.30	1.4	0.25	1.9	0.00	1.7	0.20	0.8	0.05	0.5	0.05	0.5	0.15	0.54	0.15	0.5	0.15	0.8	0.15
4	1.8	0.15	1.5	0.30	1.8	0.25	2.6	0.00	2.2	0.25	1.1	0.10	0.7	0.10	0.7	0.15	0.72	0.20	0.7	0.15	1.1	0.15
5	2.3	0.15	1.9	0.25	2.3	0.20	3.2	0.10	2.8	0.20	1.4	0.10	0.9	0.10	0.9	0.15	0.9	0.20	0.9	0.15	1.4	0.15
6	2.8	0.20	2.2	0.20	2.8	0.15	3.8	0.15	3.3	0.25	1.6	0.10	1.1	0.10	1.1	0.20	1.08	0.20	1.1	0.15	1.6	0.15
7	3.2	0.20	2.6	0.05	3.2	0.10	4.5	0.25	3.9	0.15	1.9	0.20	1.3	0.15	1.3	0.20	1.26	0.15	1.3	0.10	1.9	0.10
8	3.7	0.25	3.0	0.10	3.7	0.05	5.1	0.30	4.4	0.20	2.2	0.15	1.4	0.05	1.4	0.15	1.44	0.15	1.4	0.10	2.2	0.10
9	4.1	0.15	3.3	0.05	4.1	0.01	5.8	0.05	5.0	0.10	2.4	0.05	1.6	0.05	1.6	0.05	1.62	0.10	1.6	0.05	2.4	0.05
Right Bank	4.6	0.00	3.7	0.00	4.6	0.00	6.4	0.00	5.5	0.00	2.7	0.00	1.8	0.00	1.8	0.00	1.8	0.00	1.8	0.00	2.7	0.00
Feature Type	run		run		run		run		run		riffle		riffle		run		run		run		run	
(riffle, run, or pool)																						

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

5.76 MAXIMUM

1.38 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 4

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.19.07 18:00	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	Road 130
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421762	4486327		12.8	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421810	4486420		5.2	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
59	log jam	60	downstream	61	upstream
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: none				

WBID # 447
Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: corn fields				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel	% Sand 70	% Silt	% Mud/Clay 30	% Bedrock
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Aquatic Vegetation:

vegetation only on banks

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.19.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>4</u> Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0421762</u> UTM Y: <u>4486327</u> +/- <u>12.8</u> (meters) 11 UTM X: <u>0421810</u> UTM Y: <u>4486420</u> +/- <u>5.2</u> (meters) Average Stream Width: <u>4.3</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson</u> and <u>Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.19.07</u> Time: <u>18:00</u> Dissolved Oxygen: <u>7.3</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.2</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.6	0.05	0.2	0.05	0.3	0.01	0.4	0.05	0.4	0.05	0.2	0.10	0.5	0.05	0.6	0.01	0.64	0.15	0.6	0.10	0.6	0.30
2	1.1	0.15	0.4	0.20	0.5	0.05	0.7	0.01	0.7	0.05	0.4	0.20	0.9	0.15	1.3	0.30	1.28	0.35	1.1	0.05	1.1	0.45
3	1.7	0.20	0.5	0.20	0.8	0.10	1.1	0.15	1.1	0.10	0.5	0.20	1.4	0.20	1.9	0.40	1.92	0.50	1.7	0.10	1.7	0.45
4	2.2	0.20	0.7	0.20	1.1	0.15	1.5	0.15	1.5	0.10	0.7	0.20	1.8	0.25	2.6	0.50	2.56	0.45	2.2	0.20	2.2	0.45
5	2.8	0.20	0.9	0.15	1.4	0.15	1.9	0.15	1.9	0.15	0.9	0.15	2.3	0.25	3.2	0.50	3.2	0.25	2.8	0.25	2.8	0.45
6	3.3	0.15	1.1	0.15	1.6	0.20	2.2	0.20	2.2	0.20	1.1	0.15	2.8	0.15	3.8	0.60	3.84	0.10	3.3	0.35	3.3	0.40
7	3.9	0.15	1.3	0.10	1.9	0.20	2.6	0.00	2.6	0.15	1.3	0.15	3.2	0.40	4.5	0.60	4.48	0.10	3.9	0.40	3.9	0.35
8	4.4	0.15	1.4	0.05	2.2	0.10	3.0	0.05	3.0	0.10	1.4	0.10	3.7	0.35	5.1	0.60	5.12	0.20	4.4	0.40	4.4	0.30
9	5.0	0.05	1.6	0.01	2.4	0.05	3.3	0.05	3.3	0.05	1.6	0.05	4.1	0.15	5.8	0.40	5.76	0.20	5.0	0.10	5.0	0.20
Right Bank	5.5	0.00	1.8	0.00	2.7	0.00	3.7	0.00	3.7	0.00	1.8	0.00	4.6	0.00	6.4	0.00	6.4	0.00	5.5	0.00	5.5	0.00
Feature Type	run		run		riffle		riffle		riffle		run		run		run		run		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.60 MAXIMUM

0.15 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 5

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.19.07 18:55	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	150th Road
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421682	4483733		6.4	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0421617	4483564		5.2	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
62	downstream	63	upstream	64	livestock
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
 Site # 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: pasture				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay 100	% Bedrock
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Aquatic Vegetation:

grasses on bank and in water except where cows eroded the soil
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Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
					brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

very muddy because this whole site has open access to cattle

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.19.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>5</u> Estimated Channel Incision: <u>2.9</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0421682</u> UTM Y: <u>4483733</u> +/- <u>6.4</u> (meters) 11 UTM X: <u>0421617</u> UTM Y: <u>4483564</u> +/- <u>5.2</u> (meters) Average Stream Width: <u>4.8</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.19.07</u> Time: <u>18:55</u> Dissolved Oxygen: <u>6.4</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>21.1</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.05	0.4	0.10	0.6	0.05	0.5	0.05	0.5	0.10	0.5	0.05	0.6	0.15	0.5	0.05	0.55	0.30	0.5	0.15	0.5	0.05
2	0.9	0.10	0.7	0.30	1.1	0.10	0.9	0.10	0.9	0.10	0.9	0.35	1.1	0.15	0.9	0.30	1.1	0.40	0.9	0.35	0.9	0.30
3	1.4	0.20	1.1	0.30	1.7	0.30	1.4	0.15	1.4	0.25	1.4	0.30	1.7	0.15	1.4	0.50	1.65	0.40	1.4	0.50	1.4	0.50
4	1.8	0.30	1.5	0.25	2.2	0.30	1.8	0.20	1.8	0.30	1.8	0.25	2.2	0.10	1.8	0.45	2.2	0.45	1.8	0.55	1.8	0.60
5	2.3	0.20	1.9	0.30	2.8	0.30	2.3	0.25	2.3	0.20	2.3	0.10	2.8	0.15	2.3	0.50	2.75	0.40	2.3	0.55	2.3	0.60
6	2.8	0.20	2.2	0.20	3.3	0.25	2.8	0.30	2.8	0.25	2.8	0.30	3.3	0.10	2.8	0.35	3.3	0.30	2.8	0.55	2.8	0.65
7	3.2	0.25	2.6	0.10	3.9	0.20	3.2	0.20	3.2	0.25	3.2	0.45	3.9	0.30	3.2	0.15	3.85	0.30	3.2	0.50	3.2	0.55
8	3.7	0.20	3.0	0.05	4.4	0.20	3.7	0.10	3.7	0.20	3.7	0.30	4.4	0.40	3.7	0.05	4.4	0.25	3.7	0.25	3.7	0.40
9	4.1	0.10	3.3	0.05	5.0	0.10	4.1	0.05	4.1	0.10	4.1	0.05	5.0	0.15	4.1	0.01	4.95	0.30	4.1	0.10	4.1	0.25
Right Bank	4.6	0.00	3.7	0.00	5.5	0.00	4.6	0.00	4.6	0.00	4.6	0.00	5.5	0.00	4.6	0.00	5.5	0.00	4.6	0.00	4.6	0.00
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.65 MAXIMUM

0.25 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 6

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07	8:45	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould		165 Road
Current Weather Conditions: clear		Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.		Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>		

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, in Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0420128	4481239		5.5	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0420155	4481100		5.8	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
65	upstream	66	downstream	67	livestock watering
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: none				

WBID # 447
 Site # 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: pasture				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel	% Sand 90	% Silt 10	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

only on banks, common grasses, forbes, trees
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Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
silt filled? brownish-gray					
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

This stream has widened by 2 or 3 times as much as the previous sites. Flow not as good until last transect.

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>6</u> Estimated Channel Incision: <u>1.7</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0420128</u> UTM Y: <u>4481239</u> +/- <u>5.5</u> (meters) 11 UTM X: <u>0420155</u> UTM Y: <u>4481100</u> +/- <u>5.8</u> (meters) Average Stream Width: <u>8.3</u> (meters) Length of Survey Segment: <u>166</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson</u> and <u>Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.20.07</u> Time: <u>8:45</u> Dissolved Oxygen: <u>7.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>18.4</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1.0	0.05	0.8	0.15	0.8	0.25	0.8	0.30	0.7	0.05	0.9	0.40	0.8	0.10	0.9	0.25	0.91	0.25	0.7	0.01	0.6	0.05
2	2.0	0.35	1.6	0.20	1.6	0.50	1.6	0.45	1.5	0.20	1.8	0.75	1.6	0.20	1.8	0.50	1.82	0.55	1.5	0.15	1.3	0.20
3	3.0	0.30	2.5	0.35	2.5	0.60	2.5	0.50	2.2	0.30	2.7	0.80	2.5	0.30	2.7	0.70	2.73	0.75	2.2	0.20	1.9	0.20
4	4.0	0.30	3.3	0.45	3.3	0.50	3.3	0.35	2.9	0.60	3.6	0.80	3.3	0.35	3.6	0.85	3.64	0.80	2.9	0.25	2.6	0.25
5	5.1	0.30	4.1	0.50	4.1	0.45	4.1	0.25	3.7	0.80	4.6	0.70	4.1	0.30	4.6	0.60	4.55	0.90	3.7	0.26	3.2	0.25
6	6.1	0.25	4.9	0.55	4.9	0.45	4.9	0.30	4.4	0.85	5.5	0.45	4.9	0.30	5.5	0.45	5.46	0.80	4.4	0.50	3.8	0.20
7	7.1	0.25	5.7	0.60	5.7	0.40	5.7	0.30	5.1	0.65	6.4	0.35	5.7	0.35	6.4	0.40	6.37	0.45	5.1	0.50	4.5	0.15
8	8.1	0.30	6.6	0.50	6.6	0.30	6.6	0.20	5.8	0.40	7.3	0.40	6.6	0.40	7.3	0.15	7.28	0.15	5.8	0.40	5.1	0.10
9	9.1	0.20	7.4	0.35	7.4	0.10	7.4	0.05	6.6	0.20	8.2	0.25	7.4	0.30	8.2	0.05	8.19	0.10	6.6	0.15	5.8	0.05
Right Bank	10.1	0.00	8.2	0.00	8.2	0.00	8.2	0.00	7.3	0.00	9.1	0.00	8.2	0.00	9.1	0.00	9.1	0.00	7.3	0.00	6.4	0.00
Feature Type	run		run		run		run		run		run		run		run		run		run		riffle	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.90 MAXIMUM

0.30 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 7

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07	9:45	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould		Road 175
Current Weather Conditions: clear		Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.		Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>		

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, in Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:		Meters
	0419862	4479231			7.0
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:		Meters
	0419856	4479116			6.1

Photos:

Photo ID#	Photo Purpose	Photo ID#:	Photo Purpose	Photo ID#:	Photo Purpose
68	downstream	69	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
 Site # 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: crops, pasture				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
	20	70	10		

Aquatic Vegetation:

banks vegetated

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
					brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
pool	73.2	8.2	18.3	~1.7	~2

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>7</u> Estimated Channel Incision: <u>3.4</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0419862</u> UTM Y: <u>4479231</u> +/- <u>7</u> (meters) 11 UTM X: <u>0419856</u> UTM Y: <u>4479116</u> +/- <u>6.1</u> (meters) Average Stream Width: <u>9.1</u> (meters) Length of Survey Segment: <u>181.3</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson</u> and <u>Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.20.07</u> Time: <u>9:45</u> Dissolved Oxygen: <u>7.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>19.6</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.20	1.1	1.00	1.1	0.25	0.9	0.10	0.7	0.30	1.1	0.50	1.1	0.15	0.8	0.10	1.01	0.01	0.9	0.01	0.7	0.05
2	0.9	0.15	2.2	1.00	2.2	0.55	1.8	0.30	1.5	0.55	2.2	0.75	2.2	0.35	1.6	0.20	2.02	0.05	1.8	0.05	1.5	0.20
3	1.4	0.10	3.3	1.00	3.3	0.80	2.7	0.25	2.2	0.25	3.3	0.95	3.3	0.50	2.5	0.10	3.03	0.00	2.7	0.00	2.2	0.15
4	1.8	0.15	4.4	1.00	4.4	1.00	3.6	0.10	2.9	0.35	4.4	0.70	4.4	0.60	3.3	0.15	4.04	0.00	3.6	0.10	2.9	0.10
5	2.3	0.20	5.5	1.00	5.5	0.95	4.6	0.05	3.7	0.50	5.5	0.40	5.5	0.70	4.1	0.20	5.05	0.05	4.6	0.10	3.7	0.05
6	2.8	0.15	6.6	1.00	6.6	0.75	5.5	0.10	4.4	0.50	6.6	0.20	6.6	0.70	4.9	0.25	6.06	0.15	5.5	0.20	4.4	0.20
7	3.2	0.10	7.7	1.00	7.7	0.75	6.4	0.15	5.1	0.50	7.7	0.20	7.7	0.65	5.7	0.35	7.07	0.25	6.4	0.20	5.1	0.20
8	3.7	0.05	8.8	0.50	8.8	0.55	7.3	0.25	5.8	0.40	8.8	0.25	8.8	0.55	6.6	0.40	8.08	0.20	7.3	0.10	5.8	0.10
9	4.1	0.05	9.9	0.10	9.9	0.20	8.2	0.20	6.6	0.15	9.9	0.05	9.9	0.30	7.4	0.20	9.09	0.25	8.2	0.05	6.6	0.05
Right Bank	4.6	0.00	11.0	0.00	11.0	0.00	9.1	0.00	7.3	0.00	11.0	0.00	11.0	0.00	8.2	0.00	10.1	0.00	9.1	0.00	7.3	0.00
Feature Type	riffle		pool		pool		run		run		run		run		run		run		riffle		riffle	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

1.00 MAXIMUM

0.20 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 8

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07 10:55	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	195th St.
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418868	4476380		7.6	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418859	4476258		8.2	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
70	downstream	71	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
 Site # 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:

Comments:
 CRP ground? (native forbs)

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other:
 none

Substrate:

% Cobble	% Gravel	% Sand 90	% Silt 10	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

none, except banks are vegetated

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>8</u> Estimated Channel Incision: <u>3.9</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0418868</u> UTM Y: <u>4476380</u> +/- <u>7.6</u> (meters) 11 UTM X: <u>0418859</u> UTM Y: <u>4476258</u> +/- <u>8.2</u> (meters) Average Stream Width: <u>5.7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.20.07</u> Time: <u>10:55</u> Dissolved Oxygen: <u>7.8</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>20</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Station																						
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.05	0.5	0.05	0.7	0.05	0.3	0.30	0.6	0.01	0.5	0.05	0.5	0.05	0.4	0.05	0.55	0.05	0.9	0.15	1.0	0.10
2	0.9	0.15	0.9	0.10	1.5	0.05	0.5	0.30	1.3	0.00	0.9	0.20	0.9	0.15	0.7	0.10	1.1	0.25	1.8	0.10	2.0	0.15
3	1.4	0.10	1.4	0.20	2.2	0.00	0.8	0.25	1.9	0.10	1.4	0.25	1.4	0.10	1.1	0.20	1.65	0.30	2.7	0.10	3.0	0.30
4	1.8	0.15	1.8	0.25	2.9	0.05	1.1	0.25	2.6	0.20	1.8	0.25	1.8	0.20	1.5	0.20	2.2	0.30	3.6	0.15	4.0	0.35
5	2.3	0.15	2.3	0.30	3.7	0.10	1.4	0.25	3.2	0.30	2.3	0.20	2.3	0.10	1.9	0.30	2.75	0.20	4.6	0.25	5.1	0.30
6	2.8	0.10	2.8	0.35	4.4	0.20	1.6	0.20	3.8	0.35	2.8	0.35	2.8	0.30	2.2	0.30	3.3	0.20	5.5	0.25	6.1	0.20
7	3.2	0.10	3.2	0.35	5.1	0.20	1.9	0.15	4.5	0.30	3.2	0.35	3.2	0.30	2.6	0.30	3.85	0.15	6.4	0.25	7.1	0.20
8	3.7	0.05	3.7	0.30	5.8	0.15	2.2	0.10	5.1	0.25	3.7	0.30	3.7	0.30	3.0	0.21	4.4	0.10	7.3	0.25	8.1	0.10
9	4.1	0.05	4.1	0.15	6.6	0.05	2.4	0.05	5.8	0.15	4.1	0.15	4.1	0.30	3.3	0.15	4.95	0.10	8.2	0.15	9.1	0.05
Right Bank	4.6	0.00	4.6	0.00	7.3	0.00	2.7	0.00	6.4	0.00	4.6	0.00	4.6	0.00	3.7	0.00	5.5	0.00	9.1	0.00	10.1	0.00
Feature Type	riffle		run		run		run		run		run		riffle		run		run		run		run	

(riffle, run, or pool)

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.35 MAXIMUM

0.20 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 9

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07 11:50	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	205th St.
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418746	4474530		5.8	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418739	4474380		10.7	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
72	downstream	73	upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
Site # 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:

Comments:

CRP?

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other:

none

Substrate:

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
10		90	in solution		

Aquatic Vegetation:

banks only: horsetail, catalpa trees, other deciduous trees, prairie forbes

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
				brown, silty	
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>9</u> Estimated Channel Incision: <u>0.5</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0418746</u> UTM Y: <u>4474530</u> +/- <u>5.8</u> (meters) 11 UTM X: <u>0418739</u> UTM Y: <u>4474380</u> +/- <u>10.7</u> (meters) Average Stream Width: <u>7.5</u> (meters) Length of Survey Segment: <u>151</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.20.07</u> Time: <u>11:50</u> Dissolved Oxygen: <u>7.9</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>20.5</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.8	0.05	0.7	0.05	0.7	0.20	0.8	0.10	0.7	0.05	0.7	0.10	0.7	0.05	0.7	0.05	0.73	0.45	0.8	0.20	0.7	0.15
2	1.6	0.20	1.5	0.20	1.5	0.50	1.6	0.25	1.5	0.20	1.5	0.35	1.5	0.25	1.5	0.15	1.46	0.60	1.6	0.40	1.5	0.55
3	2.5	0.25	2.2	0.20	2.2	0.50	2.5	0.20	2.2	0.25	2.2	0.50	2.2	0.35	2.2	0.20	2.19	0.45	2.5	0.60	2.2	0.85
4	3.3	0.35	2.9	0.40	2.9	0.50	3.3	0.50	2.9	0.40	2.9	0.60	2.9	0.35	2.9	0.25	2.92	0.35	3.3	0.55	2.9	0.85
5	4.1	0.30	3.7	0.65	3.7	0.50	4.1	0.55	3.7	0.40	3.7	0.65	3.7	0.50	3.7	0.30	3.65	0.30	4.1	0.40	3.7	0.75
6	4.9	0.25	4.4	0.55	4.4	0.50	4.9	0.55	4.4	0.40	4.4	0.06	4.4	0.55	4.4	0.40	4.38	0.30	4.9	0.40	4.4	0.70
7	5.7	0.15	5.1	0.45	5.1	0.35	5.7	0.55	5.1	0.35	5.1	0.60	5.1	0.45	5.1	0.50	5.11	0.60	5.7	0.60	5.1	0.60
8	6.6	0.10	5.8	0.30	5.8	0.20	6.6	0.50	5.8	0.60	5.8	0.35	5.8	0.35	5.8	0.45	5.84	0.40	6.6	0.45	5.8	0.50
9	7.4	0.05	6.6	0.20	6.6	0.05	7.4	0.05	6.6	0.20	6.6	0.25	6.6	0.05	6.6	0.10	6.57	0.20	7.4	0.01	6.6	0.25
Right Bank	8.2	0.00	7.3	0.00	7.3	0.00	8.2	0.00	7.3	0.01	7.3	0.00	7.3	0.00	7.3	0.00	7.3	0.00	8.2	0.00	7.3	0.00
Feature Type (riffle, run, or pool)	run		run		run		run		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

0.85 MAXIMUM

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

0.35 MEDIAN

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: gilisa gould Date: 10.04.07

WBID # 447
 Site # 10

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07 13:10	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	Freedom Road
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO 0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418107	4471943		5.2	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0418090	4471843		7.8	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
74	upstream	75	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
 Site # 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input checked="" type="checkbox"/> Other:
Comments: CRP?				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble 30	% Gravel	% Sand 70	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

vegetated along banks; sparse individual duckweed (1-5%) in water

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
greenish-brown and not clear; silt?					
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 10

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>10</u> Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0418107</u> UTM Y: <u>4471943</u> +/- <u>5.2</u> (meters) 11 UTM X: <u>0418090</u> UTM Y: <u>4471843</u> +/- <u>7.8</u> (meters) Average Stream Width: <u>8.7</u> (meters) Length of Survey Segment: <u>174.4</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>19.20.07</u> Time: <u>13:10</u> Dissolved Oxygen: <u>7.8</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>22.3</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.6	0.10	0.7	0.15	0.7	0.25	0.8	0.15	1.0	0.15	0.9	0.20	1.0	1.00	0.8	1.00	1.19	0.20	0.9	0.20	0.9	0.25
2	1.1	0.70	1.5	0.55	1.5	0.50	1.6	0.45	2.0	0.55	1.8	0.40	2.0	1.00	1.6	1.00	2.38	0.50	1.8	0.25	1.8	0.40
3	1.7	0.85	2.2	0.65	2.2	0.55	2.5	0.60	3.0	0.65	2.7	0.70	3.0	1.00	2.5	0.45	3.57	0.70	2.7	0.30	2.7	0.30
4	2.2	0.60	2.9	0.60	2.9	0.45	3.3	0.55	4.0	0.65	3.6	0.60	4.0	1.00	3.3	0.00	4.76	0.30	3.6	0.25	3.6	0.25
5	2.8	0.45	3.7	0.45	3.7	0.45	4.1	0.50	5.1	0.70	4.6	0.60	5.1	1.00	4.1	0.40	5.95	0.25	4.6	0.30	4.6	0.25
6	3.3	0.30	4.4	0.40	4.4	0.50	4.9	0.60	6.1	0.75	5.5	0.60	6.1	1.00	4.9	0.60	7.14	0.30	5.5	0.30	5.5	0.20
7	3.9	0.25	5.1	0.35	5.1	0.45	5.7	0.45	7.1	0.65	6.4	0.60	7.1	1.00	5.7	0.80	8.33	0.70	6.4	0.55	6.4	0.50
8	4.4	0.20	5.8	0.35	5.8	0.35	6.6	0.30	8.1	0.30	7.3	0.60	8.1	1.00	6.6	1.00	9.52	0.40	7.3	0.60	7.3	0.60
9	5.0	0.05	6.6	0.10	6.6	0.10	7.4	0.25	9.1	0.15	8.2	0.25	9.1	1.00	7.4	0.60	10.71	0.30	8.2	0.10	8.2	0.30
Right Bank	5.5	0.00	7.3	0.00	7.3	0.00	8.2	0.00	10.1	0.00	9.1	0.00	10.1	0.00	8.2	0.00	11.9	0.00	9.1	0.00	9.1	0.00
Feature Type (riffle, run, or pool)	pool		run		run		run		run		run		run		run		run		run		run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

1.00 MAXIMUM

0.45 MEDIAN

Signed: gilisa gould

Date: 10.04.07

WBID # 447
 Site # 11

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time: 9.20.07 14:20	Site Location Description (e.g. road crossing):
Personnel: D. Dodson & G. Gould	Highway A
Current Weather Conditions: clear	Facility Name: Blythedale WWTF
Weather conditions for the past 10 days: no precip.	Permit Number: MO0123081
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0417406	4470058		6.4	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
76	upstream	77	downstream	78	showing height of bank
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 447
Site # 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: none				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble 20	% Gravel 30	% Sand 50	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

banks vegetated, 10% algae bloom @ 7 transects
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Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: brown
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 447
Site # 11

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: gilisa gould Date of Survey: 9.20.07

Organization: SES, Inc. Position: field team leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>447</u> Site #: <u>11</u> Estimated Channel Incision: <u>0.3</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0417406</u> UTM Y: <u>4470058</u> +/- <u>6.4</u> (meters) 11 UTM X: _____ UTM Y: _____ +/- _____ (meters) Average Stream Width: <u>9.1</u> (meters) Length of Survey Segment: <u>181.1</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Drew Dodson and Gilisa Gould</u>	Dissolved Oxygen Date: <u>9.20.07</u> Time: <u>14:20</u> Dissolved Oxygen: <u>9.4</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>25</u> (°C)
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Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.8	0.01	0.6	0.05	0.8	0.05	0.7	0.05	0.6	0.35	1.2	0.05	1.2	0.05	1.0	0.05	0.91	0.10	0.9	0.05	1.2	0.05
2	1.6	0.05	1.1	0.10	1.6	0.15	1.5	0.20	1.3	0.30	2.4	0.20	2.4	0.01	2.0	0.20	1.82	0.30	1.8	0.20	2.4	0.15
3	2.5	0.20	1.7	0.15	2.5	0.20	2.2	0.40	1.9	0.40	3.6	0.25	3.6	0.00	3.0	0.30	2.73	0.30	2.7	0.25	3.6	0.20
4	3.3	0.25	2.2	0.15	3.3	0.30	2.9	0.30	2.6	0.45	4.8	0.25	4.8	0.00	4.0	0.00	3.64	0.25	3.6	0.35	4.8	0.20
5	4.1	0.35	2.8	0.15	4.1	0.35	3.7	0.20	3.2	0.50	6.0	0.30	6.0	0.00	5.1	0.30	4.55	0.25	4.6	0.50	6.0	0.30
6	4.9	0.40	3.3	0.15	4.9	0.30	4.4	0.20	3.8	0.40	7.1	0.40	7.1	0.05	6.1	0.50	5.46	0.20	5.5	0.60	7.1	0.40
7	5.7	0.15	3.9	0.10	5.7	0.20	5.1	0.25	4.5	0.25	8.3	0.40	8.3	0.45	7.1	0.55	6.37	0.25	6.4	0.60	8.3	0.35
8	6.6	0.15	4.4	0.05	6.6	0.15	5.8	0.05	5.1	0.10	9.5	0.30	9.5	0.55	8.1	0.40	7.28	0.40	7.3	0.50	9.5	0.35
9	7.4	0.15	5.0	0.01	7.4	0.05	6.6	0.05	5.8	0.01	10.7	0.05	10.7	0.25	9.1	0.20	8.19	0.20	8.2	0.10	10.7	0.15
Right Bank	8.2	0.00	5.5	0.00	8.2	0.00	7.3	0.00	6.4	0.00	11.9	0.00	11.9	0.00	10.1	0.00	9.1	0.00	9.1	0.00	11.9	0.00
Feature Type	run		run		run		run		pool		pool		run		run		run		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

0.60 MAXIMUM

0.20 MEDIAN

Signed: gilisa gould Date: 10.04.07

WBID# 0447



Site# 1 Photo ID# 53, Downstream



Site# 1 Photo ID# 54, Upstream



Site# 2 Photo ID# 55, Upstream



Site# 2 Photo ID# 56, Downstream

WBID# 0447



Site# 3 Photo ID# 57, Upstream



Site# 3 Photo ID# 58, Downstream



Site# 4 Photo ID# 59, Log jam



Site# 4 Photo ID# 60, Downstream

WBID# 0447



Site# 4 Photo ID# 61, Upstream



Site# 5 Photo ID# 62, Downstream



Site# 5 Photo ID# 63, Upstream



Site# 5 Photo ID# 64, Livestock

WBID# 0447



Site# 6 Photo ID# 65, Upstream



Site# 6 Photo ID# 66, Downstream



Site# 6 Photo ID# 67, Livestock watering



Site# 7 Photo ID# 68, Downstream

WBID# 0447



Site# 7 Photo ID# 69, Upstream



Site# 8 Photo ID# 70, Downstream



Site# 8 Photo ID# 71, Upstream



Site# 9 Photo ID# 72, Downstream

WBID# 0447



Site# 9 Photo ID# 73, Upstream



Site# 10 Photo ID# 74, Upstream



Site# 10 Photo ID# 75, Downstream



Site# 11 Photo ID# 76, Upstream

WBID# 0447



Site# 11 Photo ID# 77, Downstream

No photo

Site# 11 Photo ID# 78, showing height of bank